

ABSTRACT OF THE DISCLOSURE

A method for making single-site catalysts useful for olefin polymerization is disclosed. A nitrogen-functional heterocycle is first deprotonated with an alkylolithium compound, followed by reaction of this 5 anionic ligand precursor with about 0.5 equivalents of a Group 4 transition metal tetrahalide in a hydrocarbon solvent at a temperature greater than about 10°C to give an organometallic complex-containing mixture. When combined with exceptionally low levels of an activator (e.g., methyl alumoxane), the mixture actively polymerizes olefins to give polymers 10 with a favorable balance of physical properties, including low density and narrow molecular weight distribution.